



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

SCIENCE

A WEEKLY JOURNAL DEVOTED TO THE ADVANCEMENT OF SCIENCE, PUBLISHING THE
OFFICIAL NOTICES AND PROCEEDINGS OF THE AMERICAN ASSOCIATION
FOR THE ADVANCEMENT OF SCIENCE.

FRIDAY, JUNE 10, 1904.

CONTENTS:

Herbert Spencer's Autobiography: PROFESSOR
LESTER F. WARD..... 873

The Work of the Year 1903 in Ecology: DR.
HENRY CHANDLER COWLES..... 879

Scientific Books:—

*The Desert Botanical Laboratory of the
Carnegie Institution*: DR. FREDERIC E.
CLEMENTS. *Physiology in the Interna-
tional Catalogue of Scientific Literature*:
PROFESSOR FREDERIC S. LEE..... 885

Societies and Academies:—

*The Washington Meeting of the American
Physical Society*: PROFESSOR E. B. ROSA.
The Botanical Society of America: PRO-
FESSOR D. T. MACDOUGAL. *The New York
Academy of Sciences, Section of Anthropol-
ogy and Psychology*: PROFESSOR JAMES E.
LOUGH. *Section of Geology and Mineral-
ogy*: DR. EDMUND OTIS HOVEY..... 888

Discussion and Correspondence:—

The Complex Nature of Thorium: PRO-
FESSOR CHARLES BASKERVILLE. *A Reddish-
brown Snowfall*: EDWARD LINDSEY..... 892

Special Articles:—

Mental Efficiency and Health: PROFESSOR
ROBERT MACDOUGALL..... 893

The Electron Theory: W. S. F..... 896

A Heavy Japanese Brain: DR. EDW. ANTHONY
SPITZKA 899

Professor Rutherford on Radium..... 899

Scientific Notes and News..... 900

University and Educational News..... 904

HERBERT SPENCER'S AUTOBIOGRAPHY.*

THE autobiography of a great man, the publication of which during his lifetime is expressly interdicted by him, unavoidably raises the question as to the possibility of disinterested action. Mr. Spencer has, indeed, in his 'Autobiography' discussed the motives that prompted his work, and has shown that egoism and altruism are inextricably mixed in the composition of these motives. But he speaks only of his philosophical works, all of which appeared during his lifetime, and in which he may, therefore, be supposed to have a personal interest. But here is a work of no mean proportions, in which he knew he could take no interest after it appeared. In many cases the motive may be explained by the belief on the part of the authors that they will continue to exist and remain cognizant of all that is to take place, and will, therefore, know just what the effect of their action is to be upon the world at large. But no such motive can be alleged in the present case, for he himself says: 'as I have no belief in anything to be gained in another world, it can not be otherworldliness that moved me'; and again: 'with death there lapses both the consciousness of existence and the consciousness of having existed.' This is not the place to discuss such a question, but in the minds of many it can not be suppressed.

The 'Autobiography' of Herbert Spencer must not be regarded as a mere pastime and incidental episode in his career, but as

MSS. intended for publication and books, etc., intended for review should be sent to the Editor of SCIENCE, Garrison-on-Hudson, N. Y.

* Two volumes. New York, D. Appleton and Company, 1904, 8°.

an integral part of his life work. Whereas his other works constitute his philosophy of nature, his 'Autobiography' constitutes his philosophy of life. It is a large work, seriously written, costing him years of labor. It was not written after his main work was done as a closing retrospect to his laborious life, but was executed in the midst of his busiest days, while he was hard at work on his 'Synthetic Philosophy.' It was begun, he tells us, in May, 1875, *i. e.*, while he was writing the first volume of his 'Principles of Sociology,' and the main portion of it was finished on his sixty-ninth birthday, April 27, 1889, or while he was writing the first volume of his 'Principles of Ethics.' It is true that four years later he wrote some 'Reflections,' which occupy the last sixty pages of the 'Autobiography,' in which some of the events of that period are alluded to, but this is not, like the rest, a chronological record. But even if we place the conclusion of this work at the year 1893, which is the date of the second volume of the 'Principles of Ethics,' we find that it ended before the appearance of either of the last two volumes of the 'Principles of Sociology,' although parts of the second volume had been published. The third volume bears date, 1897. There were then still four years of activity after the last word of the 'Autobiography' had been dictated before the conclusion of the 'Synthetic Philosophy.' He survived his great work six years, and there are evidences that he was by no means idle during that time. In a letter dated May 4, 1897, although he characterizes himself as a 'wreck,' still he speaks somewhat doubtfully of his ability to complete his "remaining task—revision of the 'Principles of Biology.'" Why he did not bring his 'Autobiography' down to some such date, or even later, has not yet been explained.

This work has done the important service of dispelling a large amount of pop-

ular error with regard to Herbert Spencer's life and career. The prevailing opinion has been that he was a typically 'self-made man.' He has been represented as having had to struggle with adversity, and has been held up as a proof of the theory that great abilities are certain to assert themselves whatever the obstacles may be in their path. His life shows that, on the contrary, he was highly favored by circumstances. While of course without his talents his achievements would have been impossible, still, given such talents, there was scarcely any reason why he should not have accomplished great things. He does not himself favor the Galtonian doctrine, but fully recognizes his indebtedness to circumstances. He admits that but for the three legacies that were one after the other left him by his two uncles and his father, he could never have completed his system. But he was even more indebted to the help of influential friends, freely volunteered, and by a whole train of favorable circumstances, fully set forth in his 'Autobiography.' Indeed, his very environment was sufficient to bring out all that was in him. On intimate terms for the greater part of his life with such men as Huxley, Tyndall, Hooker, Lubbock, Mill, Lewes and Bain, belonging to the same clubs, taking long walks, and having constant discussions with them, the stimulus must have been enormous.

He enters quite elaborately into the question of genealogy, and shows that his ancestors embodied extremely heterogeneous elements, elements, as he maintains, calculated to implant in him most of the characteristics that he possessed. To a groundwork of immemorial English and a little Scotch there was added a strain of the French Huguenot, probably tinted with Bohemian Hussite protestantism. It must not, however, be supposed that this ancestral heterogeneity rendered him any the

less typically English, for the one leading characteristic of the whole Anglo-Saxon race is the complete mixture of all the numerous races—Saxon, Danish, Norman, British, Welsh, Scotch, etc.—that entered into the composition of the later inhabitants of that historic isle.

Herbert Spencer is commonly represented as being the type of a self-educated man. Nothing could be farther from the truth. The son of a professional teacher belonging to a long line of teachers, he was surrounded by educational influences from his very birth. So far from struggling to educate himself, his main efforts as a boy seem to have been to escape from the perpetual drill of the domestic school. His father finally sent him away to be further drilled by his uncle, but it was the same old story, geometry forever. His youthful escapade from this latter educational treadmill is very amusing. Many boys of some pluck, when they imagine themselves ill-treated at home, 'run away,' but Spencer, thinking himself overtaken by his uncle, *ran home*, from Hinton to Derby, a distance of nearly 150 miles! He admits that it was largely homesickness, and one can compare it to nothing but the way a domestic animal, removed from the spot to which it has become wonted, will seize the first opportunity to go back, regardless of the distance, and guided by that little-known 'sense of direction' that some think to be located in the semicircular canals of the ear.

But whatever his treatment may have been, and it certainly was never severe, Herbert Spencer as a boy was always being taught. His education was not sporadic and one-sided, but methodical and all-sided. He is usually represented as wholly ignorant of Greek or Latin and of modern languages. In so far as this is true it was due to his distaste for them, for he complains of being taught them. At that day, before

the natural sciences had come to receive the place they now occupy in education, all pupils belonged to one or the other of two classes, those that loved mathematics and hated languages, and those that loved languages and hated mathematics. Spencer belonged to the first of these classes. But he had to learn languages and dead languages at that, and any close observer of his style can see that he did learn them sufficiently to affect his style. It is clear that he always had the derivation of a word in mind when using it, and that he knew enough Greek and Latin to apply their principles to his own language. He seems to have known very little German, but he not only read French, but spoke it well enough to act on one occasion as an interpreter.

All that is left, therefore, of the prevailing notion about his education is that he was not university trained. He thought that a great advantage, and never tired of citing proofs that university training spoils a man for all usefulness and fills him with a mass of useless rubbish. Whether he would have done any better or worse had he taken a university course may be a difficult question to answer, but his whole reasoning on the subject is unsound because it is based on the exceptional man and takes no account of the average man. Indeed, his entire philosophy of education is permeated by this vice. His book on education may be said to rest on the assumption that every child has a father or a mother or both capable of properly educating him or her. One has only to look around to see how absurd this assumption is.

Herbert Spencer belonged to the middle class; though not rich, he was by no means poor. He never did manual labor of any kind, and none of his ancestors at all recent belonged to the laboring classes. He explains the smallness of his hands by this

fact. He never knew what it was to be in want or to fear that he might come to want. The only work of a bread-winning kind that he ever did was while serving as a civil engineer in the construction of certain railroads. This occupied nine years of his life (1837-46), from his seventeenth to his twenty-sixth year. The several positions that he held during this time were not sought, but were offered to him, generally, as he admits, through the influence of his friends rather than from any superiority of his own in the business. More than once he gave up a good position and returned home for awhile. But his father's latch-string was always out and he was welcomed back whatever might be the cause of his coming. He alleges as one reason for not holding his positions longer, his 'lack of tact in dealing with men, especially superiors,' and says: "Advancement depends rather on pleasing those in authority than on intrinsic fitness. * * * Never did it enter into my thoughts to ingratiate myself with those above me. Rather I have ever been apt, by criticisms and outspoken differences of opinion, to give offense." In other words, he was no toady, and never cared to 'crook the pregnant hinges of the knee where thrift may follow fawning.' But he was never removed from any position. He always voluntarily quit work, usually with the regret of his employers.

The only other period of his life that he was subject, even nominally, to the will of a superior was during the five years (1848-53) that he was sub-editor of the *Economist*, and this position he also voluntarily relinquished. This was an easy position and left him much leisure time, as may be judged from the fact that during this period he wrote his first book, 'Social Statics.' It was to be hoped that in his 'Autobiography' he would give a full explanation of how he came to choose the title 'Social Statics.' He does, indeed, discuss a num-

ber of titles that had occurred to him, but leaves it to be assumed that the one finally adopted was originally his own. To find the true explanation it is necessary to go to the revised edition of that work published in 1892, where in a footnote to page 233 he says he met with the phrase in Mill's 'Political Economy,' Mill himself crediting it to another writer, which other writer, though Spencer did not know it, was Auguste Comte. It thus happens that, notwithstanding his strenuous efforts to disclaim all influence of Comte, three of the leading terms of his philosophy, *social statics*, *sociology* and *altruism*, were Comtean terms.

After leaving the *Economist* he devoted himself for a time to article writing, which yielded him some revenue, though scarcely a livelihood, but which had the advantage of enabling him, as Nietzsche would say, to get rid of his thoughts. Instead, however, of getting rid of them, he found them taking complete possession of him. In fact, the very next year (1854) he commenced writing his 'Principles of Psychology,' which he finished within a year, and the work actually appeared in 1855. But even this, so far from satisfying him, served only the more completely to open up the vista of his future, and although he characterized the next two years as 'idle,' before the end of 1857 a great system of philosophy had taken shape in his mind. His first rough draft of its main heads was made and dated January 6, 1858. Two years later the complete prospectus was issued, and this was adhered to in most particulars during the subsequent thirty-seven years of its execution.

He had now made his plans known to all his friends and they had unanimously encouraged him to proceed. The great obstacle was publication, as no publisher would undertake so hazardous a work, and after much discussion and advice it was

decided to issue the work in parts by subscription. In one of the appendices to the 'Autobiography' appears the list of original subscribers. We may judge of the backing that he had, even at the outset, by the following names that are found among others in that list: John Stuart Mill, Charles Darwin, Thomas Huxley, Sir Charles Lyell, Sir Joseph Hooker, Sir John Herschel, Professor De Morgan, George Henry Lewes, George Eliot, Charles Kingsley, George Grote, Alexander Bain, Henry T. Buckle, Jules Simon.

It is interesting to compare the original draft with the final draft of the prospectus of Mr. Spencer's system. Aside from the difficulty of explaining why he called both parts of Vol. I. ('First Principles') the 'Unknowable' in the former, while Part II. in the latter deals with the 'Knowable,' there is the fact that in the original draft he makes Part III. treat of 'Astronomic Evolution' and Part IV. of 'Geologic Evolution,' these being the 'two volumes' that were wholly omitted in the completed system. As this original draft was never before published the world was left practically in the dark as to what these volumes would have contained had they been written. In the explanatory note inserted in the preface to 'First Principles' (p. xiv) he simply states that the application of these principles to inorganic nature is omitted, but this gives no intimation as to how this application would have been made. He does, indeed, refer in at least two other places to these omitted volumes ('Principles of Biology,' Vol. I., Appendix, pp. 479, 480; 'Principles of Sociology,' Vol. I., p. 3), and in the second of these he says that one of the volumes would have dealt with 'Astrogeny' and the other with 'Geogeny.' These appear to be the only hints that he gave out on this point, and few readers probably ever noticed them. But in one of his letters written in 1895 he

entered much more fully into this subject and set forth clearly just what his whole system would have been had it been fully written out.*

The rest of the 'Autobiography' deals mainly with the execution of this great scheme, which need not be followed out. There are, however, many incidental matters connected with the chief matter, and some not connected with it, that have a special interest. Only a few of these can be mentioned. One of these relates to the reception that Mr. Spencer's books met with at the hands of the public. Nothing certainly is more annoying to a writer on philosophical subjects than the reviews of his books. As Spencer says, "adverse criticisms of utterly unjust kinds frequently pursue the conscientious writer. * * * Careless misstatements and gross misrepresentations continually exasperate him." He finally discovered that reviews do more harm than good. An author is lucky if no attention is paid to his books, for it is far better to be 'smothered with silence' than to be willfully or ignorantly misrepresented. A reviewer who has not the caliber to understand a book, but who must, nevertheless, review it because it is sent to the press, will usually indulge in cheap flings at it and apply to it damaging epithets calculated to deter readers from examining it. If it seems radical or opposed to current ideas it will arouse 'offended prejudices' or call down the *odium theologicum*. Everybody knows how Darwin's works were treated by the religious press. Then there is the subsidized press, which maintains a strict censorship over the contemporary literature, more effective in some respects than that of despotic governments, and every book that is suspected of being at all 'dangerous' is attacked by the leading journals, sometimes with ridicule, some-

* See SCIENCE, N. S., Vol. III., February 21, 1896, p. 294; 'Pure Sociology,' pp. 67-69.

times with apparent seriousness, usually by scholarly writers employed for the purpose. Even specialists can always be hired to write books down.

Mr. Spencer found that the sale of his books was being seriously interfered with through hostile reviews. Professor Bain, who was one of the subscribers, told John Stuart Mill that for a long time he did not read 'First Principles,' saying "that the impression gained from notices of it had deterred him. He went on to say that when, subsequently, he read the book he found to his astonishment that the reviews had not given him the remotest conception of its contents." It was, therefore, decided to send no more copies to the press, and this policy was adhered to until near the end of the work. After it had been fairly tested it was found on examining the accounts that the sales had about doubled.

As already remarked, Mr. Spencer was now beholden to no man and could devote all his energies to his great task. But he was destined to become a slave to a worse master than any superior officer. He was to become the victim of an insidious disease, a disease which proved incurable, and which attacked precisely the organ of which he had the greatest need—his brain. It began with insomnia, and was always attended with insomnia, but it soon threatened complete prostration, and from his thirty-fifth year to the end of his life it was one constant struggle for health. But it was not a fatal disease, as he lived well into his eighty-fourth year, and, as he says, it was not a painful disease, and, like most forms of neurasthenia, it did not show in his face, so that people always supposed him younger than he was. But it rendered continuous attention to anything whatever impossible. His work must henceforth be done at short sessions with long intervals of rest. There were sometimes days, weeks and even months that he could do nothing.

In the pursuit of health he traveled much and resorted to all forms of amusement. Fishing was his favorite pastime, but he often took long pedestrian journeys.

He must have been a very poor observer. It would seem that he had subordinated and practically sacrificed his perceptive to his reflective faculties. With even the little dips into entomology, botany and geology that he had made in his early life, one would suppose that he would have seen more in the world. But he rarely mentions any object in natural history. It is very disappointing to read his account of walks, for example, round the Isle of Wight. He does, indeed, mention the chalk, but he never mentions the far more interesting Wealden formation, and seems to have had no idea of the geology of that island. It was the same with his visits to the Yorkshire coast and other places celebrated for their geological interest. But he observed men and human operations, and usually criticizes everything severely. Nothing in art, ancient or modern, came up to his ideal.

Herbert Spencer, as all know, never married, and it seems certain that his celibacy was the result of a reasoned resolve to let nothing interfere with his main purpose. But it is evident from reading his 'Autobiography' that he was not lacking in any of the qualities that would have made family life successful. He often alludes to it as a good that he was compelled to forego. His views of women were of the most enlightened kind, and the ideal of marriage that he sets forth in a letter to a friend about to marry is as perfect and noble as it is possible to conceive of. There are doubtless many readers for whom the most interesting part of his 'Autobiography' will be that which treats of his relations with George Eliot, although, so far as can be judged either from this work or from the 'Life and Letters of George

Eliot,' these relations were never in any sense sentimental. But they were certainly much more intimate and more prolonged than any of her letters would lead us to suppose. It is surprising to learn that it was he chiefly who urged her to write fiction, an idea which she could not at first entertain. The 'Letters' leave the impression that it was Lewes who played this rôle. Perhaps both equally saw in her this talent before she saw it in herself. It is equally surprising that she should have made Spencer her confidant in the matter of the authorship not only of her first stories, but also of 'Adam Bede.' It is to be regretted that she, too, did not write an autobiography.

Such is a hasty glance at a few of the salient points in the 'Autobiography' of Herbert Spencer. No two persons would select the same points, and no such glance can hope to do justice to the work. Nothing has been said of his inventions, which were numerous but none of them important or successful; of his numerous essays, from his 'Proper Sphere of Government' to his 'Factors of Organic Evolution'; of his 'Descriptive Sociology,' that monumental but costly undertaking; of his 'cerebral hygiene,' which, unlike that of Comte, consisted in reading nothing that he did not agree with, thus warping, as Comte had dwarfed, the growth of ideas; of his more extended travels, including his visit to America, which latter is familiar to us all; nor of his persistent hostility to governmental initiative (*laissez faire*), which formed so prominent a feature in his political philosophy.

With regard to this last it would seem that owing to preconceptions of his youth confirmed during his connection with the *Economist*, he was unduly frightened by the bugbear of collectivism, which is really nothing but social integration, and a necessary part of the very social evolution which

he taught. For this must consist, as in both inorganic and organic nature, of differentiation and integration. His inability to perceive this made his system, so broad at its base, a frustum instead of a pyramid.

The 'Autobiography' is written in a much more pleasing style than his other works. It shows its author in all the simplicity of true greatness. His life demonstrates that he was a natural product of his time. He lived at the acme of the Victorian age, the grandest epoch in history, and he was directly in touch with all the powerful forces that characterized that epoch. When we take into consideration his own inherent powers we may say in very truth that his life was 'a continuous adjustment of internal relations to external relations,' and that he was a normal product of the laws of evolution that he expounded.

LESTER F. WARD.

WASHINGTON, D. C.

THE WORK OF THE YEAR 1903 IN
ECOLOGY.*

AN apology for this paper is necessary and will be forthcoming. The task outlined in the title is by no means voluntary, but has been imposed upon the speaker by your relentless committee; and this—as the secretary will acknowledge—in spite of the speaker's urgent protest. It is always impossible to give a critical summary of current events, because all of us are afflicted with the disease of contemporary blindness. It is more than impossible to do such a task for the field of ecology, since the field of ecology is chaos. Ecologists are not agreed even as to fundamental principles or motives; indeed, no one at this time, least of all the present speaker, is prepared to define or delimit ecology. It is, therefore, a

* Read by invitation of the sectional committee, Section G, American Association for the Advancement of Science, at the St. Louis meeting, December 29, 1903.